In The Claims:

Please amend claims as follows:

1. (currently amended) A memory device of chalcogenide phase-change non-volatile memory, comprising;

a top electrode;

a bottom electrode; and

a phase-change thin film between the top electrode and the bottom electrode, wherein the phase-change thin film is a chalcogenide alloy doped with an element therein, and the element enhances a crystallization rate of the chalcogenide alloy, and wherein the mole ratio of the element within the chalcogenide alloy is lower than 10%.

2. (original) The memory device of claim 1, wherein the element includes Tin (Sn).

Claim 3-4 (canceled)

5. (original) The memory device of claim 1, wherein the chalcogenide alloy is $Ge_2Sb_2Te_5$.

6. (currently amended) A method of fabricating a memory device of chalcogenide phase-change non-volatile memory, comprising;

forming a bottom electrode;

forming a phase-change thin film on the bottom electrode, wherein the phase-changed thin film is a chalcogenide alloy doped with an element, and the element enhances the

crystallization rate of the chalcogenide alloy, and wherein the mole ratio of the element within the chalcogenide alloy is lower than 10%; and

forming a top electrode on the phase-change thin film.

7. (original) The method of fabricating a memory device of claim 6, wherein the method of forming the phase-change thin film is performed by a sputtering process using a chalcogenide target doped with the element therein.

8. (original) The method of fabricating a memory device of claim 6, wherein the method of forming the phase-change thin film is performed by a co-sputtering process using a target having the element and a chalcogenide target.

9. (original) The method of fabricating a memory device of claim 6, wherein the method of forming the phase-change thin film of the chalcogenide alloy doped with the element therein is performed by an ion-implantation process.

10. (original) The method of fabricating a memory device of claim 6, wherein the method of forming the phase-change thin film of the chalcogenide alloy doped with the element therein is performed by a diffusion process.

11. (original) The method of fabricating a memory device of claim 6, wherein the method of forming the phase-change thin film is performed by a co-evaporation process using the chalcogenide alloy and the element.

12. (original) The method of fabricating a memory device of claim 6, wherein the element includes Tin (Sn).

13. (currently amended) A chalcogenide phase-change non-volatile memory, comprising:

a word-line;

a bit-line, which is electrically coupled to the word-line;

a selective device, which is electrically coupled to the word-line and the bit-line; and

a memory device, which is electrically coupled to the selective device, wherein the memory device comprises a top electrode, a bottom electrode and a phase-change thin film between the top electrode and the bottom electrode, and the phase-change thin film is a chalcogenide alloy doped with an element therein, the element enhancing the crystallization rate of the chalcogenide alloy, and wherein the mole ratio of the element within the chalcogenide alloy is lower than 10%.

14. (original) The chalcogenide phase-change non-volatile memory of claim 13, wherein the element includes Tin (Sn).

Claim 15-16 (canceled)

17. (original) The chalcogenide phase-change non-volatile memory of claim 13, wherein the chalcogenide alloy is $Ge_2Sb_2Te_5$.